LESSON PLAN

Session: 2025-26   **Class: B.Sc. I**

Subject: PHYSICS   **Paper code: B23- PHY-101**

Name of the faculty: Mrs. Narinder Pal Kaur

Month	Week	Topics to be covered
July	22.07.25	Introduction
	23.07.25-26.07.25	Rigid body, Moment of inertia
	28.07.25-31.07.25	Radius of gyration, Theorem of perpendicular axis
August	01.08.25-02.08.25	Theorem of parallel axis, Moment of Inertia
	04.08.25-08.08.25	Moment of inertia of ring, Disc and annular disc
	11.08.25-14.08.25	Moment of Inertia of Solid cylinder and hollow cylinder
	18.08.25-23.08.25	Moment of inertia of rectangular plate and triangular plate
	25.08.25-30.08.25	Solid sphere and hollow sphere, Rotational kinetic energy Angular momentum and law of conservation of angular momentum
September	01.09.25-06.09.25	Fly wheel and moment of inertia of irregular body Introduction, Deforming force elastic limit
	08.09.25-13.09.25	Stress, strain and Hooks law Modulus of rigidity, relation between angle of shear and strain, Elastic energy stored in an elastic body
	15.09.25-20.09.25	Elongation produced in heavy rod, tension in rotating rod, Elastic constants and relation between them
	22.09.25-27.09.25	Torque required for twisting cylinder and hollow shaft is much stronger than solid one
	29.09.25-30.09.25	Bending of beam and moment, flexural rigidity cantilever and depression produced in centrally loaded beam, Elastic constants by Searle's method
October	01.10.25-04.10.25	Special Theory of relativity and its postulates, Michelson Morley experiment
	06.10.25-11.10.25	Michelson Morley experiment, Lorentz Transformation, Simultaneity and order of events

	13.10.25-18.10.25	Time dilation and Length Contraction, Relativistic velocity and velocity addition Mass energy equivalence and Doppler effect, Transformation of energy and momentum, force **ASSIGNMENT TOPICS**: Four vectors, Problems of relativistic dynamics, Acceleration of charge particle by constant electric field, Transverse Electric field
Vacations	19.10.25-26.10.25	Diwali Vacations
	27.10.25-31.10.25	Law of gravitation, Potential and field due to spherical shell and solid sphere
November	01.11.25-08.11.25	Motion of particle under central force field, g by bar pendulum. Two body problem and its reduction to one body problem
	10.11.25-15.11.25	Compound pendulum and its expression, Normal coordinates and normal modes Normal modes of vibration for given mass system
	17.11.25-22.11.25	Possible angular frequencies of oscillation of two identical simple pendulum Revision

LESSON PLAN

Session: 2025-2026   **Class: B.Sc. II**

Subject: PHYSICS   **Paper code: B23- PHY-301**

Name of the faculty: Mrs. Twinkle Sharma

Month	Week	Topics to be covered
July	22.07.25	Introduction
	23.07.25-26.07.25	Thermodynamics Systems, variables and equation of state, equilibrium and Zeroth law of thermodynamics.
	28.07.25-31.07.25	Concept of heat, work and path dependence, First law of thermodynamics and limitations.
August	01.08.25-02.08.25	Internal energy as state function, Types of processes, Second law of thermodynamics and significance.
	04.08.25-08.08.25	Carnot theorem, absolute scale of temperature and absolute zero.
	11.08.25-14.08.25	Joule Thomson effect, joule porous plug experiment, analytical treatment of joule Thomson effect.
	18.08.25-23.08.25	Entropy and TS diagram, Nernest law.
	25.08.25-30.08.25	Liquefaction of gases, solidification of He, Cooling by adiabatic demagnetization.
September	01.09.25-06.09.25	Derivation of Clausius–Clapeyron and Clausius latent heat equation, Specific heat of vapours.
	08.09.25-13.09.25	Phase diagrams, triple point, development of Maxwell thermodynamical relations.
	15.09.25-20.09.25	Thermodynamical functions and relation between them, application of Maxwell relations, relation between two specific heats of gas.
	22.09.25-27.09.25	Derivation of Clausius Clapeyron equation, variation of intrinsic energy with volume.
	29.09.25-30.09.25	Stefan law, adiabatic compression and deduction of theory of joule Thomson effect, Distribution of N distinguishable and indistinguishable particles in two boxes of equal size, microstate and microstate.
October	01.10.25-04.10.25	Thermodynamical probability, Constraints and accessible states, Statistical fluctuations, general distribution of distinguishable particles in compartments of different size
	06.10.25-11.10.25	Entropy and probability, concept of phase space. Division of phase space into cells, Postulates of statistical mechanics

	13.10.25-18.10.25	Basic approach of classical and quantum statistics Maxwell Boltzmann statistics applied to ideal gas equilibrium- energy distribution law. **Assignment Topic**: Maxwell distribution of speed and velocity, Most probable speed, average and R.M.S speed, mean energy of Maxwellian distribution.
Vacations	19.10.25-26.10.25	Diwali Vacations
	27.10.25-31.10.25	Dulong and petit law, derivation of Dulong and petit law from classical Physics
November	01.11.25-08.11.25	Need of quantum statistics – Classical versus quantum statistics, Bose – Einstein energy distribution Law. Application of B-E statistics to Planck's radiation law, degeneracy and B-E condensation.
	10.11.25-15.11.25	Fermi-Dirac energy distribution law, F-D gas and degeneracy. Fermi energy and Fermi temperature, F.D Distribution law for electron gas in metals
	17.11.25-22.11.25	Zero-point energy, average speed of electron gas. REVISION

LESSON PLAN

Session: 2025-2026 **Class: B.Sc. III**

Subject: PHYSICS **Paper code: B23- PHY-501**

Name of the faculty: Mrs. Narinder pal Kaur, Mrs. Twinkle Sharma

Month	Week	Topics to be covered
July	22.07.25	Introduction to Quantum Mechanics, Need of Quantum Mechanics, Planck's Quantum hypothesis and radiation formula
	23.07.25-26.07.25	Quantization of EM radiation and Photoelectric effect, Compton effect, de-Broglie wave
	28.07.25-31.07.25	Wave packet, phase and group velocities, Time-dependent Schrodinger equations
August	01.08.25-02.08.25	Time- independent Schrodinger equations, Properties of wave function, Probability current density
	04.08.25-08.08.25	Linear Momentum and energy operators, Commutator of position and linear momentum operator, Expectation values of position and linear momentum
	11.08.25-14.08.25	Particle confined in a one-dimensional infinite box, energy eigen functions and eigen values, Heisenberg's Uncertainty Principle and its applications.
	18.08.25-23.08.25	Solid State Physics introduction, Crystalline state, Crystal lattice, Lattice translation vectors, Primitive and Non-Primitive unit cells
	25.08.25-30.08.25	Symmetry Operations, Bravais lattices in two and three dimensions, Miller Indices, crystallographic planes
September	01.09.25-06.09.25	Interplanar spacing, Simple crystal structures: NaCl, CsCl, HCP, Zinc blende, Diamond, diffraction of waves by crystal structures
	08.09.25-13.09.25	Idea of Reciprocal lattice: Reciprocal lattice to sc, bcc and fcc lattices, non-crystalline solids (Introduction only)
	15.09.25-20.09.25	Atomic and Molecular Physics Introduction, Sommerfeld Theory (Qualitative), Relativistic correction, Fine structure of H alpha line, Lamp shift
	22.09.25-27.09.25	Larmor's theorem (Qualitative), Vector atom model, Electron spin
	29.09.25-30.09.25	Space Quantization, Spin-Orbit Interaction energy

October	01.10.25-04.10.25	LS and JJ coupling, spectral terms for equivalent and non–equivalent electron Anomalous Zeeman effect s,
	06.10.25-11.10.25	Lande's g factor, Splitting of D1 and D2 lines in weak magnetic effect, Raman effect, Stoke and Anti- Stoke lines
	13.10.25-18.10.25	Introduction of Nuclear and Particle Physics, Composition of Nucleus, Nuclear Models, Liquid Drop Model and Semiempirical Mass Formula ASSIGNMENT TOPICS: Nuclear properties, nuclear spin, Parity, magnetic moment, quadrupole moment
Vacations	19.10.25-26.10.25	Diwali Vacations
	27.10.25-31.10.25	Nuclear Shell Model and Magic numbers (qualitative idea only)
November	01.11.25-08.11.25	Classification of fundamental particles, Quark and Lepton Quantum numbers
	10.11.25-15.11.25	Hadrons, Baryons and Mesons, Different types of Interactions and their properties
	17.11.25-22.11.25	Revision